



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/606,407	06/29/2000	Jang Jin Yoo	8733.20135	7073

30827 7590 04/07/2003

MCKENNA LONG & ALDRIDGE LLP
1900 K STREET, NW
WASHINGTON, DC 20006

EXAMINER

SCHECHTER, ANDREW M

ART UNIT	PAPER NUMBER
----------	--------------

2871

DATE MAILED: 04/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/606,407

Applicant(s)

YOO ET AL.

Examiner

Andrew Schechter

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 18-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 and 18-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 29 January 2003 have been fully considered but they are not persuasive.

Regarding claim 30, the applicants have not responded to the questions posed by the examiner in the previous office action, which are repeated here. If "the regions of the alignment film are not aligned" as in claim 30, how can the "liquid crystal molecules of the liquid crystal layer have different alignment characteristics on each region" as in claim 28? The examiner wonders whether "not aligned" in claim 30 is meant to mean that the alignment layer has not been alignment-treated, that is, subjected to further processing after being formed, while "have different alignment characteristics" in claim 28 means that the liquid crystal in the at least two regions have different orientations due to the presence of electric-field inducing windows and/or dielectric structures which differ for the regions. Is this the intent of the applicant? Pending an affirmative answer or other satisfactory explanation, the examiner maintains the rejection of claim 30 under 35 U.S.C. 112, 2nd paragraph.

The applicants have amended independent claims 1, 4, 12-16, 18, and 37 to recite the pixel electrode being divided into a plurality of domains with the dielectric structure in neighboring domains having unequal shapes. (Independent claim 35 has not been amended thus; the examiner assumes this was merely an oversight and that this was the intent of the applicants.)

The applicants do not explain what is meant by this language, either by reference to the figures or to the specification, so to avoid confusion the examiner will provide his interpretation of the amended claim language. Figs. 7-11 in the present application each show 12 pixels in a 6 by 2 grid. Each pixel (and each pixel electrode) is divided into a plurality of domains. In Fig. 7 this is done by dielectric structures [53] and in Figs. 8-11 this is done by a combination of dielectric structures [53] and windows [51]. Where there are window(s) forming a plurality of regions within a single pixel, as in the left-hand side of Fig. 3A, there are dielectric structures in the domains, though they are always shown as having equal shapes. In contrast, the prior art reference *Kim et al.*, U.S. Patent No. 6,462,798 shows unequal shapes [see Figs. 2C or 12A, for instance]. If this is intended meaning, then it is both not disclosed by the present specification and disclosed by the prior art.

Instead, the examiner assumes that "neighboring domains" is intended to refer to neighboring domains of adjacent pixels, rather than within a single pixel, so that neighboring pixels have dielectric structures of unequal shapes. Something close to this is disclosed by the present specification [see Figs. 7-11]; essentially, if the claim language were "neighboring pixels" instead of "neighboring domains", and the dielectric structures were not recited to be in the plurality of domains (sometimes they form the domains instead of being in the domains), then the claims would be supported by the specification. However, the prior art reference *Kim* [see Figs. 11-12] also discloses this feature, so the previous rejections, modified appropriately, are still valid.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 30 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

If both regions are not aligned, as in claim 30, how can they be responsible ("so that" in line 3 of claim 28) for different alignment characteristics as in claim 28?

4. Claims 1-16 and 18-37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As discussed above, the newly-amended claim language regarding "neighboring domains" and "unequal shapes" is unclear.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-16 and 18-37 are rejected under 35 U.S.C. 102(e) as being anticipated by *Kim et al.*, U.S. Patent No. 6,462,798.

Kim discloses [see Figs. 3 and 11, for instance] a multi-domain LCD comprising first and second substrates [31, 33], gate lines [1], data lines [3] defining pixel regions, a common auxiliary electrode [15] on a layer equal to the gate lines surrounding the pixel region, a gate insulating film [35], a passivation film [37], a pixel electrode [13] with a plurality of domains, a light-shielding layer [25] on the second substrate, a color filter layer [23] on the light-shielding layer, a common electrode [17] on the color filter layer, a plurality of electric field distortion dielectric structures [53] with dielectric structures in the plurality of domains and unequal shapes [see Fig. 11], and an alignment film [not shown in figures, see abstract]. Claims 1, 35, and 36 are therefore anticipated.

The pixel electrode and light-shielding layer can overlap the common-auxiliary electrode, as shown in Fig. 5a, so claims 2 and 3 are anticipated. The pixel electrode does not overlap the common auxiliary electrode in Fig. 3a, while the light-shielding pixel does overlap the pixel electrode, so claims 4 and 5 are anticipated. The gate insulating film and passivation film are formed on the whole substrate, which includes a "region except the common auxiliary electrode", so claim 6 is also anticipated.

The common auxiliary electrode is electrically connected with the common electrode [col. 4, lines 34-37], so claim 7 is anticipated. The TFT is described as being that of U.S. Patent No. 5,694,185, which is formed at the crossing of the gate and data lines, so claim 8 is anticipated. The dielectric structures can be on the pixel or common electrodes, or on the color filter layer [col. 6, lines 18-20], so claims 9-11 are anticipated.

The pixel electrode, passivation layer, gate insulating film, common electrode, and/or color filter layer can have an electric field induction window [col. 6, lines 20-24], as can an overcoat layer on the color filter layer [col. 9, lines 61-62], so claims 12-16, 18, and 37 are anticipated. The passivation layer is BCB or SiNx [col. 4, lines 26-28] so claims 19 and 20 are anticipated. The pixel electrode and common electrode are ITO and the common auxiliary electrode is Al [col. 4], so claims 21-23 are anticipated.

The dielectric constant of the dielectric structure is smaller than that of the liquid crystal and the dielectric structure is a photosensitive material, such as BCB [col. 4, lines 49-55], so claims 24-26 are anticipated.

The pixel region is divided into two regions with different driving characteristics, and different alignment characteristics; at least one region can be aligned, and/or there are regions which are not aligned [col. 6, lines 46-63], so claims 27-30 are anticipated.

The liquid crystal has positive or negative dielectric anisotropy, there can be a negative uniaxial or negative biaxial film, and the liquid crystal can include chiral dopants [col. 2, lines 30-40], so claim 31-34 are anticipated.

Conclusion


7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Schechter whose telephone number is (703) 306-5801. The examiner can normally be reached on Monday - Friday, 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-4711 for regular communications and (703) 746-4711 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


Andrew Schechter
March 27, 2003

TOANTON
PRIMARY EXAMINER